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Reports

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HANNES HYRENIUS

**THE REINDEER-FARMING
POPULATION IN SWEDEN**

A report in English condensed from a study
published in Swedish by the
Demographic Institute, University of Gothenburg
as Report No. 7

Con un sommario in interlingua

GOTHENBURG 1969

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1. INTRODUCTION

In the northern parts of Norway, Sweden and Finland, reindeer-farming is carried on by a small population of Lapp origin. Conditions in the three countries vary somewhat with regard both to the natural prerequisites for reindeer-farming and to its organisation.

This report presents the results from a special census of the reindeer-farming population in Sweden. It forms part of a more comprehensive Government investigation, the purpose of which was to throw light on the present conditions of reindeer-farming and to submit proposals for improving its organisation.

In Sweden reindeer-farming is controlled by law. The right to practise reindeer-farming is limited to people of Lapp origin with the further restriction, that one of the farmer's parents or grandparents must also be or have been active in reindeer-farming. The population entitled by law to practise reindeer-farming can be roughly estimated at 10 000-12 000, and of these about 2500 are directly engaged in or derive their living from reindeer-farming as their main source of income.

The majority of the reindeer-farming population is confined to the northernmost quarter of Sweden (Norrbotten County), but reindeer-farming extends southwards as far as the mountainous parts of Central Sweden. The total number of reindeer varies around 250 000. Reindeer-farming is organised in 5 districts, divided up into some 50 Lapp communities stretching mostly from the mountains (the Swedish Alps) in the west down to lower forest-covered areas towards the south-east.

It is in the south-eastern areas of the Lapp community that the reindeer spend the winter. During the spring they move up to the middle areas for the calving, and then further up to higher altitudes. During the autumn there is a gradual return to the winter grazing grounds. In some Lapp communities, the reindeer cover a distance of as much as 250 miles. In some communities known as "forest-Lapp communities" the reindeer remain in the lower mountains.

Previously, reindeer-farming meant that the entire Lapp family followed the reindeer all the year round. The

Lapps were then nomads in the proper sense of the term. For several decades, however, reindeer-farming has been carried on more extensively. Nowadays, only the reindeer herders themselves accompany the herd, which is permitted rather wide freedom of movement during certain periods.

The economic return is nowadays entirely limited to reindeer-meat and hides and, to a certain extent, the sale of reindeer antlers to tourists.

The return on reindeer-farming is relatively low, for many reasons. On an average, one reindeer in the herd is estimated to bring about Sw.Cr. 50 (= \$ 10) annually. With more effective methods of reindeer-husbandry (such as, for example, increasing the proportion of calves slaughtered, a more efficient slaughtering system, a lower percentage of male animals) the return could be expected to rise by half or more. Organisational measures are now also being proposed to simplify financing and reduce the manpower needed. With the number of animals remaining constant, the reindeer-farming population is thereby expected to become smaller.

2. THE REINDEER-FARMING POPULATION ACCORDING TO THE GENERAL CENSUSES 1930-1965

Ever since 1880, the Swedish population censuses have included among the statistics as to industry and occupations details of the number of persons engaged in and/or deriving their income from reindeer-farming, together with the members of their families.

The procedure for collecting this data and demarcating the different categories has varied. During certain periods, the number of reindeer has altered considerably, and this has been reflected in pronounced alterations in the number of those working in the industry.

The Swedish population censuses classify "reindeer-farming" as a sub-division of the industry "Agriculture with ancillary industries". Those who, according to the criteria adopted (and varying from one census to another), had reindeer-farming as their main occupation or source of income have been grouped into actively engaged workers, family helpers, and other members of the family.

The development during 1880-1965 can be seen from Table 2.1.

The number of true reindeer workers (herd owners and employed workers) remained fairly constant during the end of the 1800's and at the beginning of the 1900's at a level of about 1100. For the category "family helpers", the number was somewhat lower. Thus, as far as can be estimated from these very incomplete figures, a total "labour force" of about 1800-2000 was engaged in reindeer-farming. Towards the end of the 1800's the number of dependent family members was approximately the same as the working population.

From a reindeer-farming working population of about 1900 at the population censuses of 1900 and 1910, the number dropped considerably to 1350 in the year 1920. This can be partially explained by the fact that the need for manpower became less following upon a powerful reduction in the number of reindeer after the First World War. It was also obvious that a number of persons had changed category from "family helper" to "other family dependants". During the 1920's the reorganisation of reindeerfarming methods con-

Table 2.1 . The reindeer-farming population according to
censuses taken between 1880-1965

Year	Workers	Family helpers	Other family members	Total
1880	1169	1016	2271	4456
1890	1039	798	2125	3962
1900	1074	894	1961	3929
1910	1141	821	1689	3651
1920	876	475	1833	3184
1930	919	372	1533	2824
1940	763	379	1535	2677
1945	830	296	1572	2698
1950	850	256	1471	2577
1960	791	268	995 ¹⁾	2034 ¹⁾
1965	763	141	848 ¹⁾	1752 ¹⁾

¹⁾ Family members other than housewives and children under 16 excluded.

tinued, with the result that the once more rising number of reindeer did not bring about a corresponding increase in the number of the working population, but on the contrary a continued uneven decline.

The number of persons maintained in reindeer-farming dropped fairly slowly from 1290 in the year 1930 to 1060 in the year 1960. During the first half of the 1960's, a reduction down to 900 in the year 1965 took place. The development is unequal for the various employee categories, which is partly due to variations in the classification.

During the last 15 years, the category "employers" has remained more or less unchanged, amounting to 665 in the year 1965. The number of "family helpers" and "employed workers" was just over 400 in 1950 but dropped to just

above 200 in 1965 .

Without going into more detail as to the quality of the population census data given here, it may finally be stated that, if we add together the employed, the family helpers, the housewives, and children under the age of 15 , these categories being more or less clearly defined, we get a population of 2400 during the 1940's and 2300 in the year 1950 .

For 1960 and 1965 , to the figures shown in Table 2.1 under "Other family members" should be added, for purposes of comparison, an estimated figure of about 200 . This will give a total of about 2200 and 2000 respectively for these two years. This does not include the "pensioners" group, however, which for recent years may probably also be estimated at a couple of hundred persons.

3. SPECIAL CENSUS 1965 - DELIMITATION AND COL- LECTION OF DATA

The information previously available on the reindeer-farming population shows a good deal of variation in definitions and delimitation of categories. Moreover, the material available cannot be used to give a satisfactory assessment of nuptiality and reproduction. Further, the means are lacking for an account of the relationship between population, labour force and number of reindeer. A new census was therefore considered necessary to throw light on a number of problems involved.

After due consultation with various experts, it was decided that with certain restrictions this population study should comprise the section of the reindeer-farming population belonging to a Lapp community. In this would thus be included:

(1) persons actively engaged in or assisting with reindeer-farming

(2) persons previously engaged in reindeer-farming which they left without permanently taking up another occupation

(3) family helpers to persons in (1) and (2) without own occupation

(4) widows and children of persons in (1) and (2).

Reindeer lists, and information acquired from local parish registration offices concerning family members of the reindeer-workers would be used as a basis for the population census.

The Reindeer lists, which are compiled annually for each Lapp community individually, contain all persons with registered reindeer brand marks who are owners of reindeer.

The census was confined to persons who, according to the 1965 reindeer lists, belonged to reindeer-farming households. Together these persons make up the population professionally engaged in reindeer-farming or previously engaged in this occupation without having taken up another occupation permanently, also members of such families. This is the definition of what is known in this report as the reindeer-farming population 1965. For purposes of simplification, the abbreviation RFP will be used.

In the three counties involved, the collection of demographic information proceeded somewhat differently. Västerbotten County, which numerically has the smallest reindeer-farming population, was chosen as the area for an "experimental census", with the idea of using the experience gained for the census in the other counties. A new census list was drawn up based on the reindeer schedules from the Lapp communities in Västerbotten County. This list was then submitted to the parish registration offices for supplementary information on family members and certain data concerning dates of birth, marital status, marriages, etc.

For Norrbotten County it was found possible to use the information collected in May and June 1965 in connection with the Lapp Administration's task of drawing up general guiding principles for State activity with a view to improving conditions of employment and subsistence among the Laplanders.

In principle, information was collected in Jämtland County in the same way as for Västerbotten County.

The data processing was done manually. Special work cards were drawn up for the Counties of Västerbotten and Jämtland. For Norrbotten County, a copy of the Lapp Administration Register could be used for processing and pricking of tables, etc.

The report covers conditions existing round about 1 st July, 1965.

4. BRIEF PRESENTATION OF THE REINDEER-FARMING POPULATION 1965

The number of people "covered" by the definition of reindeer-farming population (RFP) given in the previous chapter amounts to 2497. In other words, it is this population which will be the object of study in the following chapters.

To start with, it may be pointed out that a census of this type can never be "exact". There is, in fact, reason to assume that a number of persons who, according to the definition, should have been included, have not been. Those mainly alluded to here are persons no longer engaged in reindeer-farming, and among them mostly elderly people.

The reason for the shortcomings just mentioned is to be found, for example, in the uncertainty as to who rightly belongs to a Lapp community (RL 14:1 and 14:2). It is impossible to decide how many more persons would have been included in the definition RFP with an adequate classification. A cautious estimate would be that the actual population could exceed the 2497 noted by quite a number, possibly 100 or more. The majority of these can be said to be in the age-groups exceeding 60.

Table 4.1 shows the total population divided up into the 6 districts. Of the population of 2500, almost 2000 come from Norrbotten County, and slightly more than 200 from Västerbotten County, while the number in Jämtland County is somewhat above 300.

Of the total population, 600 were children under 15, which corresponds to 24% of the total. By way of comparison it may be mentioned that of the entire population of Norrbotten in 1960 children under the age of 15 made up 27%.

The reindeer-farming population aged from 15 to 59 years amounted to somewhat over 1500 or 62%, while the number of those aged 60 or over was slightly more than 300 or 14%. For the entire population of Norrbotten, the percentages were 61% and 12% respectively. It should be remembered that behind this apparent agreement lie hidden several disturbing factors, such as a certain under-registration where higher age-groups are concerned.

Table 4.1 . Survey of the reindeer-farming population 1965
("RFP")

District	Number of Lapp com- munities	Population				
		0-14	15-59		60-ω	Total
			Men	Wo- men		
<u>Norrbotten County:</u>						
Alpine Lapp Commu- nities, N.district	9	243	330	238	131	942
Alpine Lapp Commu- nities, S. district	6	96	180	124	72	472
Forestry-district Lapp communities	10	116	166	105	60	447
Västerbotten County	6	54	84	50	34	222
Jämtland County	12	68	144	81	37	330
Concession area	6	16	38	20	10	84
Total	49	593	942	618	344	2497

The population in the ages 15-59 has been divided here according to sex in order to indicate directly the size of the labour force engaged in reindeer-farming. Roughly, the number of men of working age can be said to amount to 900 . Of these 500 were engaged in reindeer-farming in the Norrbotten Alpin area, 200 in the Norrbotten Forests (including some "concessionary Lapp communities"), 80 among the Alpine Lapp communities in Västerbotten County and 140 among those in Jämtland County. A more detailed discussion of manpower will be found in Chap. 7 .

The number of middle-aged women is considerably lower than their male counterparts - 600 compared to 900 . The great number of women who have left these areas has resulted in highly unusual marriage and marital status conditions within the reindeer-farming population.

5. DEMOGRAPHIC COMPOSITION

Table 5.1 shows the total RFP according to size of household, differentiating between children under 16 and persons above that age. Of the 696 households, 110 are households with 1 person, 133 with 2 persons, 127 with 3 persons, 118 with 4 persons and 98 with 5 persons. The remainder vary from 6 up to a maximum of 12 persons per household.

In other words, households with 1, 2, 3 or 4 persons are about equally common and cover a good two-thirds of the reindeer-farming population. However, among the various regions obvious divergencies exist.

Approximately only 40 % of households consist of parents with children under age. The average number of children among these is 2.2. In connection with these fig-

Table 5.1. Households by size and number of children

Size of household-persons	Number of households	Households by number of children.							Total number of persons
		0	1	2	3	4	5	6-8	
1	110	110							110
2	133	131	2						266
3	127	79	48						381
4	118	44	21	53					472
5	98	33	17	14	34				490
6	53	8	14	12	8	11			318
7	27	2	5	7	3	4	6		189
8	17	1	-	3	8	4	-	1	136
9-12	13	-	-	-	-	2	4	7	135
	696								2497

ures it should be observed, however, that the structure of age and marital status for RFP, as pointed out earlier, is abnormal, and that in a proportion of these families child-bearing has not yet finished.

The distribution of the population by sex, age and marital status is presented in Table 5.2. Concentrated distributions for the various districts will be found in the complete report.

A population pyramid, showing in concentrated form the distribution by sex, age and marital status for the total reindeer-farming population, has been constructed in Fig. 5.1. From this, it will be seen at once that we have here a very extreme demographic structure. The following comments may be made:

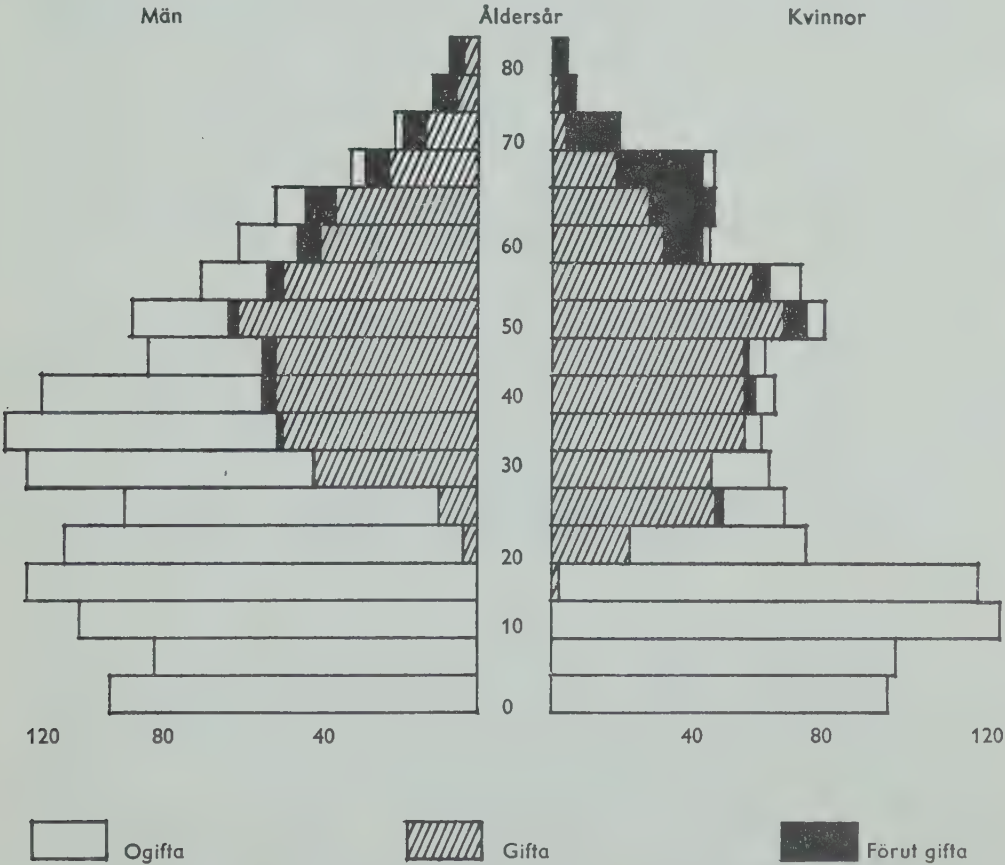
1. The 100 birth cohorts in an age-distribution are reduced partly by a mortality which has undergone considerable improvement during the period and partly by out-migration which has varied a great deal over the years. The mortality may perhaps be estimated, but out-migration from a population as defined here cannot be measured for any very long period back.
2. Since the proportion of the sexes among live births is fairly constant, it may be deduced that out-migration was much greater among the women than among the men. For ages up to 20 years the proportions involved are "normal", but for ages from 20 to 70 years the shortage of women is very appreciable.
3. A comparison of the age distribution against the background of the information, even if incomplete, about the reindeer-farming population during the 1800's gives reason to assume that the older age groups are under-represented. These groups have been considerably reduced not only by mortality and migration, but also a re-classification of those previously active in reindeer-farming and the members of their families has also taken place in the census.
4. The distribution by marital status appears to be peculiarly unique. This can be directly connected on the one hand with the general conditions of reindeer-farming and, on the other, with the considerable out-migration of women before and during the most usual ages of marriage. Thus, only 12 men under the age of 30 were married as against 68 women. In the age group 40-44, half the men (60 out of 116) were still unmarried in comparison with 6 out of the 60 women.

Table 5.2. The reindeer-farming population 1965 divided
according to sex, age and marital status

Age	Men				Women				Both sexes
	Single	Mar- ried	Ex- mar- ried	To- tal	Single	Mar- ried	Ex- mar- ried	To- tal	Total
0-4	99			99	90			90	189
5-9	86			86	92			92	178
10-14	106			106	120			120	226
15-19	120			120	113	2		115	235
20-24	109	2		111	47	22		69	180
25-29	83	10		93	18	44	1	63	156
30-34	77	43		120	15	43		58	178
35-39	72	53		125	4	52		56	181
40-44	60	55	1	116	6	52	2	60	176
45-49	33	55	1	89	2	53	2	57	146
50-54	30	63	1	94	4	63	6	73	167
55-59	20	52	2	74	7	54	6	67	141
60-64	16	41	5	62	2	29	11	42	104
65-69	7	39	7	53	1	24	18	43	96
70-74	4	23	7	34	3	17	23	43	77
75-79	2	13	6	21	1	3	13	17	38
80-∞	1	9	9	19		2	8	10	29
0-14	291			291	302			302	593
15-29	312	12		324	178	68	1	247	571
30-44	209	151	1	361	25	147	2	174	535
45-59	83	170	4	257	13	170	14	197	454
60-∞	30	125	34	189	7	75	73	155	344
Total	925	458	39	1422	525	460	90	1075	2497

Chapter 6 gives an account of efforts to elucidate the factors that led to this abnormal demographic structure of the population.

The demographic structure can be said to be unstable, built up as it is of factors, which have changed and are still changing. Moreover, attention should be drawn to the fact that the RFP is spread out over a very wide area with relatively little contact between Lapp communities and districts. The extreme conditions for the total population, therefore, have in part arisen and been preserved by the fact that the population can be considered as a number of "isolates" with varying degrees of contact. The breaking up of these isolates will have considerable importance in the future for the alteration in the behaviour pattern of the population.



	Antal
Män	1.422
Kvinnor	1.075
Summa	2.497

Fig. 5.1. Den renskötande befolkningens åldersfördelning 1965.

6. DEMOGRAPHIC CHANGE FACTORS

6.1 . Population changes in general

By way of introduction, this chapter contains some general information on mortality, nuptiality and fertility. Statistics of these factors have not been obtained separately. Owing to such things as varying definitions, this would have been a costly and time-consuming procedure, with no assurance that the data obtained were of a satisfactory nature and sufficient for the purpose. Information has chiefly been procured through an analysis of the data obtained during the actual population census.

As to the question of mortality, divergencies existed previously between the reindeer-farming population and the settled population within the same areas. Naturally, this was bound up with the nomadic way of life, which involves particular hardships with poor conditions for sick care, inadequate baby care, etc.

H. Lundborg -S. Wahlund's investigation "The Race Biology of the Swedish Lapps", Uppsala 1932, gives a comprehensive account of living conditions in Lapland during the 1800 's. The relative excess mortality among the nomadic Lapps was large. Here it is worthwhile mentioning that, during the period 1800-1889, the infant mortality rate in the first year of life was 228⁰/₀₀ for the nomadic Lapps in Kare-suando-Jukkasjärvi-Jokkmokk, but 136 for the settled population.

However, excess mortality among the reindeer-farming population during the last decades has receded owing to changes and improvements in the living conditions. Mortality, therefore, scarcely deviates now from the conditions prevalent within comparable population groups for the territories in question. It may be added here in passing that the mortality level nowadays is practically so low for the entire Swedish population that there is little reason to pay attention to any mortality differences when it comes to assessing the future development of such a small population as is discussed in this report.

As far as marriages are concerned (analysed in more

detail in section 6.2.), the material covers 117 marriages contracted during 1956-65. This gives an average of 12 marriages per annum. In relation to the 1965 population, this gives a generally observed nuptiality rate of approximately 5‰. In relation to the male population, the nuptiality rate is 4‰. The corresponding figure for the whole country during recent years is 7‰. Nevertheless, the RFP's low nuptiality rate is, as already mentioned, in part a result of the abnormal population structure.

An approximate assessment of fertility is obtained by setting the average number of children in the five youngest birth cohorts in relation to the total population. A general birth rate of 16‰ is then obtained for the entire reindeer-farming population. If a comparison is made only with the male population, which has a more "normal" age-distribution, a birth rate of 14‰ is obtained. The rates deviate very little from the average for the whole country, but they are possibly somewhat lower than for the rest of the population within the area. However, behind this lie striking structural divergencies, which are discussed in more detail in the section on fertility and number of children.

6.2. Nuptiality

For reasons already given, the analysis of the marriage conditions will be based on information obtained from the 1965 census.

Of 460 existing marriages, 318 had taken place during the years 1940-1965. These have been specially analysed as a basis for studying marriage conditions and fertility. Without having recourse to specific figures on nuptiality, the following can be deduced from Table 5.2:

1. Marriage frequency is unusually low compared with other populations. Even if a certain number of unmarried men have emigrated (whereas the emigration of married men was very likely relatively insignificant), the percentage of unmarried men of middle age remaining is extremely high. Over half the men aged 40-44 are unmarried. Of men aged 45-54, a third are unmarried and of those aged 54-65 the proportion is somewhat lower. This might possibly indicate that marriage frequency was previously somewhat higher. However, a certain amount of uncertainty exists, owing to

emigrations from the RFP on the cessation of reindeer-farming as an occupation.

2. As far as the female population is concerned, the proportion of married women is very high. The reason for this is to be found in the considerably higher emigration of girls than of young men. In the age group 30-34, 75 % of the women are married. But in the age groups 45-54, only 5 % remain unmarried.

3. The average age at marriage for those married for the first time is 31.5 years for men and 26.2 years for women. Thus the difference is an average of 5.3 years. For the whole country, the average is 27.8 and 25.1 years respectively, with a difference of 2.7 years. The shortage of unmarried women, of course, stands out as an important reason for the low and tardy nuptiality among the male reindeer-farming population. This is also reflected in the great age difference in marriage.

4. The marriage frequency for girls is closely associated with the occurrence of illegitimate pregnancy. A number of girls remain within the RFP if they marry the father of the child and he is a reindeer-farmer. In that case, this only leads to the child being born "too early" in the marriage. When the father of the child is not engaged in reindeer-farming, the marriage entails the departure of the girl since, according to the definitions, "mixed marriages" occur only exceptionally within the RFP.

5. The circumstances mentioned may be illustrated by the following information concerning those married within the reindeer-farming population in Norrbotten during 1940-1965. Of the 275 marriages, 17 % had pre-marital children in common. In addition, 29 % had children within the first 9 months of the marriage. The figures differ very little from corresponding figures for the entire Swedish population during recent years.

6.3. Fertility

Fertility is studied here primarily through the number of children of the 318 marriages still in existence at the time of the 1965 census which were contracted during the

years 1940-1965.

One effect of this sampling is that fertility and number of children can be expected to deviate from the average among married couples who have departed from the reindeer-farming population.

No special study has been made of illegitimate fertility. Its relative frequency is not negligible, but the absolute number of children is very small.

When, as here, fertility is studied by a retrospective analysis of an observed number of marriages, it must first of all be kept in mind that the structure of the observed "time of exposure" will be distorted. To a great extent, marriages can only be observed during a part of the reproductive age period. The highly fertile younger age and duration groups are over-represented. For this reason, fertility cannot be measured, for example, as the ratio between on the one hand the total number of registered children and on the other the total time of duration of the marriages from the wedding to the wife's 45th birthday. The way out of this difficulty consists in differentiating the fertility according to two of the three variables: age at marriage, age at confinement and duration, and subsequently calculating weighted averages, using a selected marriage structure as standard.

In Table 6.1 is shown the total number of 318 marriages contracted during the period 1940-1965, by age at marriage and duration of marriage. The table gives the number of "risk years" lived, the number of live-born children, and also the ratio between them, that is the marriage-age-duration-specific fertility rates.

From the fertility rates is obtained the average number of children which the various marriage-age groups would have at the end of the reproductive period if the groups' fertility agreed with that indicated.

For those married under the age of 25, an average of 4.31 children is obtained through a marriage of completed fertility. For those married at the age of 30-34, this average is 2.59 children, and for those married at the age of 35-44 it is 0.80 children. A weighted total average then comes to 3.43 children for each marriage contracted. However, it should be pointed out that this is so on the assumption that the marriage is not dissolved by death (or divorce) before the wife has reached her menopause. The average number of children combined with the marriage frequency rate would therefore be somewhat lower.

A study of fertility variation in time and according to

Table 6.1. Marriages contracted during 1940-65 with the number of risk years, number of children and fertility rates by wife's age at marriage and duration of marriage

Within each combination of marriage age and duration, the figure on top to the left indicates the number of risk years, the figure to the right the number of children, and that below to the left the fertility rate per thousand.

Wife's age at marriage	Number of marriages	Duration of marriages, years					Total risk years, children, fertility rate	Average number of children in marriages with completed fertility
		0-4	5-9	10-14	15-19	20-25		
15-24	164	715	527	378	266	75	1961	4.31
		296	105	47	26	2	476	
		414	199	124	98	27	243	
25-29	84	385	318	234	150		1087	3.09
		140	57	16	1		214	
		364	179	68	7		197	
30-34	39	178	156	138			472	2.59
		60	19	8			87	
		337	122	58			184	
35-44	31	137	103				240	0.80
		18	3				21	
		131	29				87	
15-44	318	1415	1104	750	416	75	3760	3.43
		514	184	71	27	2	798	
		363	167	95	65	27	212	

district has been carried out. The results here would appear not to require any further comment.

A simple way to compare the fertility of the RFP with that of other populations is to calculate the ratio between the number of children under the age of 5 and the number of married women below 45 years.

The following figures may be given:

	Number of children below 5 years per 100 married women below 45 years
Total reindeer-farming population	83
Total population of Norrbotten County	66
Rural population of Sweden	60
Total population of Sweden	55

It may be added that the picture would be more or less unchanged if, instead of this, the rate were calculated on the basis of the number of children in the 5-year period immediately before, that is, children of 5-9 years.

6.4 . Reproduction

The extreme composition by age, sex and marital status of the reindeer-farming population in combination with its small size, makes it impossible to apply conventional methods in order to construct a comprehensive measure of its reproduction. However, a fairly good idea of this can be obtained with the method used below.

The emigration of unmarried males can be said to have been greater than that of married men of similar age. The percentage of unmarried of different ages among the male population is, therefore, lower than would have been the case with the same marriage frequency but with no emigration.

A consequence of this is that if the corresponding marriage frequency for different ages is calculated retrospectively from the distribution by marital status, too high rates are obtained.

If the marriage rates mentioned are applied to a stationary age distribution with the observed marital status distribution, a general marriage rate of 4.5‰ is obtained. This rate is thus somewhat higher than that which would have corresponded to the actual marriage intensity, although the latter is not directly observable.

Table 6.1 shows the fertility of the different marriage age and duration classes. The average number of children is given as 3.41. This corresponds to the conditions with mortality excluded. The correction factor for marriages dissolved through death before the wife's 45th year can be estimated to give an average number of children born per contracted marriage of approximately 3.3.

If the estimated marriage rate, 4.5, is combined with this latter average number of children per marriage, a birth rate of approximately 15‰ is obtained. This agrees fairly well with the stationary population's birth and death rate, 14‰ . However, it should be observed that the marriage rate is estimated at too high a figure, and for this reason reproduction can be judged as lying somewhat below par.

To this can be added that the average number of children is high compared with the remaining Swedish population. Greater knowledge of modern contraceptive methods should result here in a falling birth rate and consequently a lower reproduction than there is at present.

6.5. Migration

As stated previously, no measures have been taken to collect special material to clarify the conditions of migration. Above all it is difficult to make a definite delimitation of the reindeer-farming population. Those who migrate do so partly in stages through temporary absence. On that account, the net result would need to be determined from the difference between two population censuses taken at an interval of several years.

As far as the male population of working ages is con-

cerned, the information derived from population censuses taken during the last twenty or thirty years would appear to provide consistent data. From this it seems possible to deduce a slight reduction during the same period.

As can be seen from the unnatural age structures, a very considerable emigration of the female part of the reindeer-farming population has taken place during very recent decades. Emigration has been so great as to diminish considerably the male's chances of getting married.

Without going into exact figures, it seems possible, from the data on the male labour force, to put the annual departure of males at 1 to 2 % or 10-20 persons. As for the female population, the great majority of the girls have emigrated except those who married a husband engaged in reindeer-farming.

7. REINDEER-FARMING MANPOWER

In estimating the manpower engaged in reindeer-farming, it has been considered sufficient to consider only male labour. Among the working population shown in the 1965 statistics on occupations, only 42 out of 904 were women, that is 5%. Of course, female labour in reindeer-farming is more extensive than this, since the women — likewise older and younger economically inactive male family members — help with herd grouping, separating, etc., at least when this is done near their homes. The heavy work involved in herding and guarding the reindeer in the forests is carried out entirely by the men.

It is, of course, impossible to measure directly the working performance of each individual reindeer-farmer. For more general calculations, it is not even possible to estimate the average working performance in days' work done, because of such things, for example, as the varying length and value of a working day at different seasons. We are therefore reduced here to using a less definite unit which refers to the annual working performance.

Since individual data on working activity are lacking, the method has been tried of assigning men of different ages a weighting as whole-year or part-year workers.

An account is given of this procedure in the complete report (No. 7). Agreement as to the number of men in the ages 20-59 was so good that this latter number was considered usable as a measurement of the manpower.

Table 7.1 presents certain schematic calculations intended to give an assessment of the manpower source within the population reported as having reindeer-farming as its principal occupation. On the basis of the estimated number of reindeer in 1966 (in total 240 000) and the number of men aged 20-59 in 1965 (in total 822), in the first column is given the estimated current number of reindeer per yearly worker (according to the definitions given above).

Column 2 shows the number of men aged 20-59 years in 1965. Column 3 gives the number of men aged 10-49 years in 1965, which may be interpreted as the number of men who will be aged 20-59 years in 1975, that is, the active years, assuming that no emigration takes place.

Table 7.1 . Estimated number of reindeer per male yearly
worker and estimated future manpower under
different assumptions

Dis- trict	Estimated no. of reindeer 1966 per man 20-59 years, 1965	Number of men 20-59 years		No. of yearly workers required with "nor- mal" number of rein- deer and ... rein- deer per man			
		1965	1975 with- out emi- gration	300	400	500	600
Nb Alps North	218	275	306	267	200	160	133
Nb Alps South	264	163	164	167	125	100	83
Vb Alps	481	79	82	140	105	84	70
Jmtl Alps	288	132	128	120	90	72	60
Forests	315	143	164	120	90	72	60

A couple of schematic calculations are given in Table 7.2 in order to throw light on how the migration can influence age structure and thereby labour and subsistence conditions.

The male population has first been projected 10 years forward with mortality only (= "Alt. 0" year 1975). A comparison with the year 1965 shows a certain overall increase; behind this there is some reduction in the younger labour force and a somewhat larger increase among the older manpower.

Two schematic assumptions as to the migration have been illustrated. The migration alternative "Alt. 1" implies an emigration during the period 1965-1975 of 40 % among those aged 10-19 years at the commencement of the period, with thereafter an emigration that decreases with age. The

Table 7.2. Schematic manpower projections for the male
reindeer-farming population 1965-1975 (ex-
cluding the concession-area)

Age	Number of men 1965	Emi- gration Alt. 0	Emigration Alt.1		Emigration Alt.2	
		Number of men 1975 Alt. 0	Emigrated 1966-1975 % Number	Number of men 1975 Alt. 1	Emigrated 1966-1975 % Number	Number of men 1975 Alt. 2
10-14	101					
15-19	111					
20-24	105	100	40	84	126	84
25-29	91	110			60	126
30-34	117	104	30	58	136	116
35-39	122	90			40	78
40-44	110	115	2	47	187	164
45-49	87	119			30	70
50-54	88	106	10	18	170	141
55-59	72	82			25	47
20-39	435	404	142	262	204	200
40-59	357	422	65	357	117	305
20-59	792	826	207	619	321	505

Percentage of yearly reduction
1966-1975 :

-2.4 %

-4.4 %

table shows a hypothetical loss totalling 207, which means that the population remaining in 1975 should be 619. Compared with the 1965 population, this means an annual aver-

age reduction of 2.4% in the number of men aged 20-59 years.

A more substantial schematic emigration pattern is shown in "Alt. 2". Among the middle-aged and older labour force also, a higher loss is counted upon here as a result of retraining and transference to other occupations as well as a certain amount of early retirement on pension. The assumption implies an average yearly reduction of 4.4% in the male population aged 20-59 years. Their numbers have thereby fallen from 792 to 505, that is, by a good third. The labour force shows a marked displacement towards older ages, with only 200 men under the age of 40 as against about 300 between the ages of 40 and 60.

The three alternatives may serve as a "frame of reference" in forming a general judgement of the conditions. Because of the unreliable information, the actual emigration during very recent years is judged to be of the order of 15 men per year. For this reason, "Alt. 1" would therefore be an estimate, even though a rough one, of what the development would be like if a moderate increase in the tendency during recent years were assumed. "Alt. 2" roughly corresponds to a doubling of the emigration.

SUMMARIO IN INTERLINGUA

In le regiones septentrional de Norvegia, Svedia e Finlandia un parve population de racia lapon se occupa del elevation de ren, "reni-cultura". Le presente studio es un analyse demographic re iste populo de civitate svedese. Illo es parte de un investigation statal, cuje objecto esseva de clarificar le presente situation economic del reni-cultura e de presentar propositiones pro un organisation meliorate.

Le derecho de exercer le elevation de ren in Svedia es legalmente limitate a personas de origine lapon, con le limitation additional que alicun del parentes o granparentes es o esseva occupate in le reni-cultura.

Le population assi definite es estimate a 10 000-20 000 personas, inter le quales circa 2 500 personas al presente gania su vita essentialmente del elevation de ren.

Le parte le plus septentrional del pais es subdividite in un cinquantena de districtos regional o "vicos lapon", situate inter le montanias in le west e le regiones boscoses in le sudest. Durante le hiberno le renes se trova in le regiones boscoses, sed in le primavera illes se retira ad in le regiones medie, ubi le vaccas parturi su vitellos, e postea le grege se remove verso le plus alte regiones montan. Intra certe vicos lapon le grege percorre mesmo 300 a 400 kilometros durante le periodo de transferimento.

Antea le elevation del ren significava que tote le familia lapon sequeva e guardava le grege durante tote le anno. Alora le lapones esseva ver nomades. Depost alicun decenas le reni-cultura es plus extensive. Solmente le active attendentes nunc seque le grege de renes, que a certe periodos pote mover se ben liberamente.

Del population, que a presente gania su vita del reni-cultura (circa 2 500 personas), le numero de personas active es circa 900, quasi exclusivamente homines.

Le population es characterisate per un distribution multo irregular secundo sexo, etate, stato matrimonial, qual facto depende in parte de forte migration, specialmente de juvene feminas, in parte de basse nuptialitate. Isto es illustrate in fig. 5.1, pag. 17, per un pyramide de etates specialmente inusual.

Iste anormal structura demographic indica que le dis-
veloppamento del population va esser inusual etiam in le fu-
turo. Le presente investigation studia le varie componentes
ab iste puncto de vista.

Le objecto del studio es de provider datos de base a
fin que le Societate potera prender mesuras pro dar al reni-
-cultura un position secur in le futuro e a su practicantes un
revenito garantiente un rationabile nivello de vita. Es propo-
nite, per exemplo, alterationes del formas de production e
mesuras organisatori a fin de facilitar le financiamento e re-
ducer le demanda de labor. A condition que le numero de
animales in le region elevatori sia constante, on calcula que
le population occupate in le reni-cultura va esser reducite.

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